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CLAIMS

1. A magnetic recording medium comprising a nonmagnetic substrate having applied thereon a magnetic recording layer, in which said substrate has, on a upper surface thereof, in sequence, a crystal orientation-improving layer and a seed layer consisting of a material having a higher surface energy than that of the crystal orientation-improving layer.

2. A magnetic recording medium according to claim 1, in which said nonmagnetic substrate is a substrate of an aluminum-based alloy or a glass substrate.

3. A magnetic recording medium according to claim 1 or 2, in which said seed layer has a thickness of not more than 2 nm, when the thickness is determined assuming that the seed layer has a continuous thickness.

4. A magnetic recording medium according to claim 1 or 2, in which said seed layer is an island-like film consisting of an islandwise distributed and deposited material having a higher surface energy than that of the crystal orientation-improving layer.

5. A magnetic recording medium according to claim 1 or 2, in which said seed layer comprises rhenium.

6. A magnetic recording medium according to claim 1 or 2, in which said crystal orientation-improving layer comprises NiP or CrP.

7. A magnetic recording medium according to claim 1 or 2, which further comprises an underlayer consisting of a chromium-based alloy between the seed layer and the magnetic recording layer.

8. A magnetic recording medium according to claim 1 or 2, which further comprises an adhesion-improving underlayer between the substrate and the crystal orientation-improving layer.

9. A magnetic recording medium according to claim 1 or 2, in which said magnetic recording layer contains cobalt as a principal component thereof and also

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contains, at least, chromium and platinum.

10. A magnetic recording medium according to claim 9, in which said magnetic recording layer further contains tantalum or tantalum and niobium.

5 11. The magnetic recording medium according to claim 10, in which said magnetic recording layer is constituted from a four-component metal alloy of cobalt, chromium, platinum and tantalum which is represented by the following formula:

10 $\text{Co}_{\text{bal.}}-\text{Cr}_{14-22}-\text{Pt}_{4-10}-\text{Ta}_x$

in which

bal. means a balance amount, and

x is a in the range of 1 to 5 at%.

15 12. The magnetic recording medium according to claim 10, in which said magnetic recording layer is constituted from a five-component metal alloy of cobalt, chromium, platinum, tantalum and niobium which is represented by the following formula:

20 $\text{Co}_{\text{bal.}}-\text{Cr}_{14-22}-\text{Pt}_{4-10}-\text{Ta}_x-\text{Nb}_y$

in which

bal. means a balance amount, and

a sum of x and y ($x + y$) is in the range of 1 to 5 at%.

25 13. The magnetic recording medium according to claim 1 or 2, which further comprises, applied over said magnetic recording layer, a protective layer consisting of carbon or diamondlike carbon.

14. A magnetic recording medium according to claim 1 or 2, which is in the form of a disk.

30 15. A process for the production of a magnetic recording medium comprising a nonmagnetic substrate having applied thereon a magnetic recording medium, which comprises the steps of:

35 providing the nonmagnetic substrate;
depositing a crystal orientation-improving material onto the substrate to form a crystal orientation-improving layer;

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depositing a seeding material having a higher surface energy than the crystal orientation-improving material on the crystal orientation-improving layer, with heating of said substrate, to form an island-like seed layer; and

depositing the magnetic recording layer on the island-like seed layer.

16. A process for the production of a magnetic recording medium according to claim 15, in which said substrate is formed from an aluminum-based alloy or glass.

17. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said substrate is heated to a temperature of not less than 150°C during formation of the island-like seed layer.

18. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said seeding material comprises rhenium.

19. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said crystal orientation-improving material comprises NiP or CrP.

20. A magnetic recording device comprises a recording head section for recording in a magnetic recording medium and a reproducing head section for reproducing information, in which the magnetic recording medium comprises a nonmagnetic substrate having applied thereon a magnetic recording layer, in which said substrate has on a upper surface thereof, in sequence, a crystal orientation-improving layer and a seed layer consisting of a material having a higher surface energy than that of the crystal orientation-improving layer; and

said recording head section is provided with a magnetoresistive head.

21. A magnetic recording device according to claim 20, in which said nonmagnetic substrate is a

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substrate of an aluminum-based alloy or a glass
substrate.

22. The magnetic recording device according to
claim 20 or 21, in which said magnetoresistive head is a
5 MR head, an AMR head or a GMR head.